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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,540	01/16/2004	Anna Kron		5593

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08/25/2005

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EXAMINER

ZEMEL, IRINA SOPJIA

ART UNIT

PAPER NUMBER

1711

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/758,540	Applicant(s) KRON ET AL	
	Examiner Irina S. Zemel	Art Unit 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1-16-2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-7, 12-14, 17-19 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for polymers based on ethylenically unsaturated monomers, does not reasonably provide enablement for polymers based on hundreds and hundreds of other possible polymerizable monomers. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. It would require undue experimentation to determine which of the polymers from hundreds of known polymers used for shells of expandable microspheres comprise, after polymerization, monomers that will react with the claimed agents. Furthermore, determining which of the polymers microspheres satisfy the brightness limitation according to claim 20, especially in view that the claimed polymers clearly encompass thermoplastic polymers that do not have any residual nitrile (as they can be polymerized from ethylenically unsaturated monomers not containing nitriles as starting monomers at all).

Claims 18 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to

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which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 18 claims a reaction product defined by Formulas I and II, but the specification does not provide enabling disclosure of how the claimed reaction product is obtained.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2, 4-9, 12-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The scope of the term "derivatives" defining the agent is indeterminate, thus, the scope of the claimed agent is indefinite.

In claims 18 and 19, it is unclear what is meant by a reaction product, i.e., what it is a reaction product of. It appears that the product defined by Formula I or II is a reaction product of one of the compounds defined in claim 19 with residual monomer. However, while claim 18 defines compounds of Formula I or II as "reaction product selected from the group consisting of salts and derivatives of sulfonic acid anion", claim 19, defines the said salts and derivatives of sulfonic acid anion as specifically listed compounds which are inconsistent with salts and derivatives defined by Formulas I and II. Clarification of the meaning of "reaction product" is required, as well as clarification of components defined in claims 8 and 19.

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4,287,308 to Nakayama et al., (hereinafter "Nakayama") in combination with US Patent 4,255,307 to Miller, (hereinafter "Miller")

Nakayama discloses a process for production of expandable thermoplastic microspheres which contain very little residual monomer in the shell, which process includes a step of contacting microspheres comprising a thermoplastic polymer shell (that includes acrylonitrile monomeric units) encapsulating a propellant and comprising residual monomers, with an agent reacting directly or indirectly with at least part of said residual monomers, thus substantially reducing the amount of residual monomers in the polymeric shell. The reference further teaches that the reacting of the microspheres with the agent can be done at any stage between polymerization and washing, or after washing. Thus, reacting the microspheres prior washing in the reaction slurry as per claims 7 or 14 would have been obvious from the disclosure of the Nakayama reference with reasonable expectation of adequate results absent showing of unexpected results that can be clearly attributed to conducting reaction in polymerization slurry.

Nakayama discloses wide variety of suitable agents for reducing acrylonitrile content of the polymeric shell, such as sulfides, sulfates, etc. The reference does not disclose the claimed silfites as being suitable agents for reacting with residual monomers. Miller

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discloses that silfites that fully correspond to the claimed agents are indeed, known agents that can be used to reduce residual monomers in acrylonitrile based polymers so that the residual level of the monomers is very low. Thus, it would have been obvious to use agents disclosed by Miller in the process disclosed by Nakayama as functional equivalents of the agents disclosed by Nakayama known for its function of reducing residual monomers in acrylonitrile based polymers with reasonable expectation of adequate results. Once such substitution is made, the resulting product will, inherently, exhibit the properties claimed in claim 10.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 20 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nakayama.

The disclosure of Nakayama is discussed above.

As far as the invention claimed in claim 20, all of the Nakamura reference discloses several microspheres containing residual nitrile monomers of the level v=below the claimed level. See tables 1 and 2. Since the disclosed product substantially corresponds to the products as claimed in the chemical composition, it is reasonably believed that the disclosed polymeric microspheres inherently exhibit the

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claimed properties. The burden is shifted to the applicants to provide evidence to the contrary.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irina S. Zemel
Examiner
Art Unit 1711



ISZ